

Docket No.: 60188-747



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Customer Number: 20277
: :
Yukio YAMAGUCHI : Confirmation Number: 2437
: :
Serial No.: 10/761,098 : Group Art Unit: 2811
: :
Filed: January 21, 2004 : Examiner: G. LEE
: :

For: LEAD FRAME, RESIN-MOLDED SEMICONDUCTOR DEVICE, AND METHOD FOR
MANUFACTURING THE SAME

REQUEST FOR CORRECTED FILING RECEIPT

Mail Stop OFR
Commissioner for Patents
P.O. Box 1450
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Sir:

Attached is a copy of the Filing Receipt received from the U.S. Patent and Trademark Office in the above-referenced application. It is noted that the Domestic Priority data is incorrect. Attached is a copy of the front page of the patent application that the re-issue is based, which evidences that the Domestic Priority data should read: **This application is a REI of 09/521,670 --- PAT 6,455,348.** It is requested that a corrected filing receipt be issued.

Respectfully submitted,

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WDC99 921507-1.060188.0747



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APPL NO.	FILING OR 371 (c) DATE	ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLMS	IND CLMS
10/761,098	01/21/2004	2811	856	60188-747	15	15	5

20277
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CONFIRMATION NO. 2437

FILING RECEIPT



OC000000012433887

Date Mailed: 04/23/2004

Receipt is acknowledged of this reissue Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Filing Receipt Corrections, facsimile number 703-746-9195. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

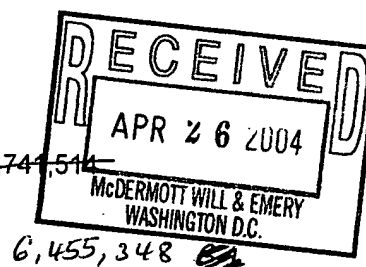
Yukio Yamaguchi, Shiga, JAPAN;

Domestic Priority data as claimed by applicant

This application is a REI of 08/521,670 08/31/1995 PAT-5,744,514

Foreign Applications

09/521,670



Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

Title

Lead frame, resin-molded semiconductor device, and method for manufacturing the same,

Preliminary Class

257

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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US006455348B1

(12) **United States Patent**
Yamaguchi(10) **Patent No.:** **US 6,455,348 B1**
(45) **Date of Patent:** **Sep. 24, 2002**(54) **LEAD FRAME, RESIN-MOLDED SEMICONDUCTOR DEVICE, AND METHOD FOR MANUFACTURING THE SAME**(75) **Inventor:** Yukio Yamaguchi, Shiga (JP)(73) **Assignee:** Matsushita Electric Industrial Co., Ltd., Osaka (JP)(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.(21) **Appl. No.:** 09/521,670(22) **Filed:** Mar. 8, 2000**Related U.S. Application Data**

(62) Division of application No. 09/244,074, filed on Feb. 4, 1999, now Pat. No. 6,081,029.

(30) **Foreign Application Priority Data**

Mar. 12, 1998 (JP) 10-060811

(51) **Int. Cl.⁷** H01L 21/44; H01L 21/48; H01L 21/50(52) **U.S. Cl.** 438/106; 438/108; 438/111; 438/112; 438/123; 438/124; 438/125; 257/666; 257/667; 257/676; 257/678(58) **Field of Search** 438/106-18, 613, 438/118, 119, 123-27; 257/666-675, 678(56) **References Cited****U.S. PATENT DOCUMENTS**

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(57)

ABSTRACT

A lead frame including signal-connecting leads, a die pad and support leads is provided. A semiconductor chip is bonded to the die pad with an adhesive. The semiconductor chip, electrode pads and the signal-connecting leads are electrically connected to each other with metal fine wires. And these members are encapsulated in a resin encapsulant. The back surface of the die pad is subjected to half etching or the like to form a convex portion and a flange portion surrounding the convex portion. Since a thin layer of the resin encapsulant exists under the flange portion, the resin encapsulant can hold the die pad more strongly and the moisture resistance of the device can be improved with the lower surface of the die pad protruding from the resin encapsulant. As a result, the characteristics of a resin-molded semiconductor device having a die pad exposed on the back surface of a resin encapsulant can be improved.

8 Claims, 15 Drawing Sheets